

WHAT IS CLAIMED IS:

1. A purified polynucleotide comprising a purified nucleotide sequence encoding a sequence selected from the group consisting of the SEQ ID NOS.: 1, 2, 3, 4, or 5, or a fragment thereof.
2. A purified polynucleotide of claim 1 or a fragment thereof, which is labeled with a detectable moiety.
3. An expression vector comprising a purified polynucleotide, or one of its fragments, of claim 1 or 2.
4. A vector comprising a purified nucleotide sequence of claim 2.
5. A host cell containing the vector of claim 4.
6. A method for constructing a transformed host cell capable of expressing SEQ ID NOS: 1, 2, 3, 4, or 5 said method comprising transforming a host cell with a recombinant DNA vector that comprises an isolated DNA sequence of claim 1.
7. A method for expressing SEQ ID NOS: 1, 2, 3, 4, or 5 in a transformed host cell, said method comprising culturing said transformed host cell of claim 5 under conditions suitable for gene expression.
8. An isolated nucleic acid molecule that comprises nucleic acids encoding multiple drug resistance proteins from *Drosophila melanogaster* or *Anopheles gambiae*.

9. A method for determining the insecticidal MRP inhibition activity of a compound, which comprises:

- a) placing a culture of insect cells, transformed with a vector capable of expressing *dMRP* or *gMRP*, in the presence of:
 - (i) an insecticidal agent to which said insect cell is resistant, but to which said insect cell is sensitive in its untransformed state;
 - (ii) a compound suspected of possessing insecticidal MRP inhibition activity; and
- b) determining the insecticidal MRP inhibition activity of said compound by measuring the ability of the insecticidal agent to inhibit the growth of said insect cell.

10. A strain of *Drosophila melanogaster* or *Anopheles gambiae* in which the *dMRP* or *gMRP* gene is disrupted or otherwise mutated such that the dMRP or gMRP protein is not produced in said strain.

11. A composition having an insecticidal activity and comprising at least a compound, which is obtainable by expression of nucleotidic sequence corresponding to one of claims 1 or 2.